



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/779,824	02/17/2004	S. Kumar Khanna	4499-040188	9138

28078 7590 10/17/2006

MAGINOT, MOORE & BECK, LLP
CHASE TOWER
111 MONUMENT CIRCLE
SUITE 3250
INDIANAPOLIS, IN 46204

EXAMINER

SCHATZ, CHRISTOPHER

ART UNIT	PAPER NUMBER
----------	--------------

1733

DATE MAILED: 10/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/779,824

Applicant(s)

KHANNA, S. KUMAR

Examiner

Christopher T. Schatz

Art Unit

1733

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>5/17/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 5-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Haba '509.

Haba discloses a method of forming an electronic assembly comprising: (a) providing a first substrate 20 having a plurality of conductive contacts 26; (b) providing a second substrate 42 having a plurality of conductive contacts 46, wherein at least of said substrates is an electric components; (c) positioning the first and second substrates with their respective conductive contacts in alignment (figures 4); (d) sandwiching an uncured anisotropic conductive material between the conductive contacts of the first and second substrates(column 6, lines 15-2, lines 46-60), the anisotropic conductive material including electrically conducting material 32, 232 suspended in a binder; (e) heating the anisotropic conductive material to a curing temperature for an interval sufficient to cause the binder to cure to a solid (column 2, lines 53-63); (f) vibrating the electrically conducting material; and (g) subjecting the electrically conducting material to a static, substantially homogeneous DC magnetic field, wherein the DC magnetic field has a field vector direction that is substantially parallel with the alignment of the conductive contacts of the first and second substrates. Applicant should note that the disclosure of Haba that

Art Unit: 1733

the electrically conducting material “migrates” to an area between the electrical contacts (figures 6B, 8A, 8B, 10, 16, column 3, lines 64-67, column 9, lines 41-66) reads on the term “vibrating.” Haba discloses application of a DC magnetic field in column 11, lines 47-67. Applicant should note that a “uniform magnetic field” is the same as a “homogeneous DC magnetic field.”

As to claim 2, Haba discloses a method wherein step (f) includes vibrating the electrically conducting material utilizing at least one of mechanical vibration and a magnetic field (column 3, lines 64-67, column 9, lines 41-66). As to claim 4, Haba discloses a method wherein at least one of step (f) and step (g) is performed during step (e) (column 2, lines 61-63).

As to claim 6, Haba discloses a method wherein step (f) occurs before step (g), or vice versa (column 3, lines 54-67). As to claim 7, Haba discloses a method wherein step (f) and step (g) occur at least partially concurrently (column 3, lines 54-67). As to claim 8, Haba discloses a method of forming an electronic assembly comprising: (a) sandwiching an uncured anisotropic conductive material between at least one pair of aligned conductive contacts, the anisotropic conductive material including electrically conducting material suspended in a binder; (b) causing the binder to cure to a solid; (c) vibrating the electrically conducting material; and (d) during curing of the binder to a solid, subjecting the electrically conducting material to a static, substantially homogeneous DC magnetic field (column 3, lines 61-63), wherein the DC magnetic field has a field vector direction that is substantially parallel with the alignment of the pair of conductive contacts (column 11, lines 47-67). Haba meets the limitations of claim 8 for the reasons set forth in the discussion of claim 3 above. As to claim 6, Haba discloses a method As to claim 6, Haba discloses a method wherein at least one of step (c) and step (d) is performed during curing of the binder to a solid (column 3, lines 61-63). As to claim 11, Haba discloses a

Art Unit: 1733

method of forming an electronic assembly comprising vibrating conductive material or particles of an anisotropic conductive compound or material sandwiched between at least two aligned conductive contacts while the anisotropic conductive compound is curing and subjecting the conductive material to a static, substantially homogeneous DC magnetic field (i) before, (ii) following or (iii) at least partially during the time the conductive material is being vibrated (column 3, lines 61-63, column 11, lines 47-67). Haba meets the limitations of claim 12 for the reasons set forth in the discussion of claim 3 above.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Haba.


Haba discloses a method as discussed in claim 1 above. The reference is silent as to the specific frequency the electrically conducting material is vibrated at. However, examiner asserts that the desired vibration frequency is a function of the desired rate of movement of the conducting material, the type of conducting material used, and the strength of the magnetic field applied, and one of ordinary skill in the art would have readily achieved a frequency in the ultrasonic range through routine experimentation. Therefore, at the time of the invention it would have been obvious to a person of ordinary skill in the art to vibrate the conducting material at a frequency in the ultrasonic range for the reasons discussed above.

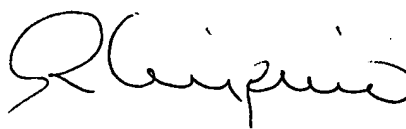
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Christopher T. Schatz** whose telephone number is **571-272-1456**. The examiner can normally be reached on 8:00-5:30, Monday -Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Christopher T. Schatz


RICHARD CRISPINO
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700